REMARKS/ARGUMENTS

The claims are 1-9, 11-15 and 17. Claims 1 and 15 have been amended to incorporate the subject matter of claim 10. Accordingly, claim 10 has been canceled. Reconsideration is expressly requested.

Claims 1-5, 15 and 17 were rejected under 35 U.S.C. 103(a) as being unpatentable over *Taylor et al. U.S. Patent No. 3,901,425* in view of *Ueyama et al. U.S. Patent No. 4,102,483*. The remaining claims were rejected under 35 U.S.C. 103(a) as being unpatentable over *Taylor et al.* and *Ueyama et al.* and further in view of *Tomiyasu et al. U.S. Patent Application Publication No. 2005/0150883* (claim 6), *Bryce et al. U.S. Patent No. 4,187,411* (claims 7 and 10), *Bryce et al.* and *Parmelee et al. U.S. Patent No. 4,731,518* (claims 8 and 9), *Strybel U.S. Patent No. 4,458,719* (claims 11 and 12), *Strybel* and *Huismann et al. U.S. Patent No. 7,165,707* (claim 13), or *Savard et al. U.S. Patent No. 2,964,612* (claim 14).

In response, Applicants have amended claims 1 and 15 to incorporate the subject matter of claim 10 and respectfully traverse the Examiner's rejection for the following reasons.

As set forth in claims 1 and 15 as amended, Applicants' invention provides a buffer device for a welding wire and a welding plant, respectively, including means for detecting the filling level or quantity of welding wire of a wire buffer storage. The detection means detects the longitudinal movement of a wire core, and, in particular, the free end of the wire core. The wire buffer storage is designed in a manner that the wire core is fastened or fixed on one end, with its other end being freely movable, and the wire core together with the welding wire, at least over a partial region, is arranged to be freely movable within a wire guide hose extending in a helix-shaped or spiral-shaped manner.

As can be seen from FIGS. 5 and 6 of Applicants' disclosure, the wire core 30 is fixed on one end, preferably in the region of the welding apparatus 1, whereas the other end of the wire core

30 is freely movable, preferably terminating in the region of the welding torch 10. The wire core 30 is freely movable within the wire guide hose 38. The free end of the wire core 30 is able to carry out a longitudinal movement as a function of the state of curvature of the wire core 30 within the wire guide hose 38, as a function of the storage condition.

FIG. 5 of Applicants' disclosure shows the situation of the buffer device with its minimum storage volume and FIG. 6 shows the buffer with its maximum storage volume. In order to enable the optimum welding wire conveyance to be realized with a wire buffer storage 35, Applicants' buffer device and welding plant as set forth in claims 1 and 15 as amended, respectively, have means for detecting the filling level or storage condition of the wire buffer storage 35, the detection means detecting or determining the longitudinal movement of the wire core 30 and, hence, allowing the filling state of the wire buffer storage 35 to be concluded therefrom. This detection may, for example, be effected in a simple manner by coupling the free end of the wire core 30 to a potentiometer 45 or incremental sensor via driver

arm 44 such that the filling level of the wire buffer storage 35 can be concluded from the longitudinal change 43 of the wire core 30 by a control device 4, as is schematically illustrated in FIGS. 5 and 6. It is also possible, however, to use other sensors for detecting the filling level, for instance, as shown in the embodiment according to FIGS. 13 and 14 of Applicants' disclosure.

The primary reference to *Taylor et al.* fails to disclose or suggest a welding wire buffer or welding plant containing same as recited in Applicants' claims 1 and 15 as amended. Although the Examiner has taken the position at paragraph 8 of the Office Action that one end of the wire core 98 of *Taylor et al.* is freely moveable, it is respectfully submitted that the Examiner's position is unfounded. Although the Examiner refers to column 6, lines 38-47 of *Taylor et al.* in support of his position, it is respectfully submitted that this portion of *Taylor et al.* fails to disclose or suggest or even mention that one end of the liner 98 is freely movable in the longitudinal direction. Because there is no freely moveable end of the wire core in *Taylor et*

al., a fortiori, there is no possibility to detect the filling level or quantity of welding wire within the wire buffer storage by detecting the longitudinal movement of the free end of the wire core as recited in Applicants' claims 1 and 15 as amended.

The defects and deficiencies of the primary reference to *Taylor et al.* are nowhere remedied by the secondary reference to *Ueyama et al.*, which simply discloses a method for feeding a welding wire from a wire reel to a welding torch, via a conduit cable 14. Although within the conduit cable 14 of *Ueyama et al.* the welding wire 10 is fed in a spiral state along the inner surface of the wire guide hose, there is no wire guide hose extending in a helix-shaped or spiral-shaped manner and arranged within the hose package or outside the hose package as shown in FIGS. 3-4 of Applicants' disclosure. As recited in Applicants' claims 1 and 15 as amended, the welding wire 13 is arranged to be freely movable within this wire guide hose 38. As discussed in Applicants' disclosure, the wire guide hose extending in a helix-shaped or spiral-shaped manner will force the welding wire into the helix-shaped or spiral-shaped course, which is not the case

in *Ueyama et al.*, where the welding wire is guided within the straight conduit cable 14. Using a strong material for the welding wire it will be hard to force the welding wire into a spiral-shaped course. When using a soft material for the welding wire, however, bending or folding of the welding wire, probably will result.

Bryce et al. shows an apparatus for consumable electrode inert gas shielded metal arc welding including a welding torch 1 through which a welding electrode in the form of a copper-plated steel welding wire 2 is fed from a storage reel 3 via flexible guide tube 4. Coupled to the wire feed tube 4 just upstream of the welding torch 1 is a module 12 for use in monitoring the stick-out distance 11 of the wire 2 beyond the tip 10 of the torch 1. There is no disclosure or suggestion of a buffer storage that is designed in a manner that the wire core is fastened or fixed on one end, with its other end being freely movable, wherein the wire core together with the welding wire at least over a partial region is arranged to be freely movable within a wire guide hose extending in a helix-shaped or spiral-

shaped manner.

The remaining references to *Tomiyasu et al.*, *Parmelee et al.*, *Strybel*, *Huismann et al.*, and *Savard et al.*, likewise fail to disclose or suggest a wire guide hose extending in a helix-shaped or spiral-shaped manner or a welding wire buffer as recited in Applicants' claims or the benefits achieved by same.

Accordingly, it is respectfully submitted that claims 1 and 15 as amended, together with claims 2-9, 11-14 and 17 which depend directly or indirectly on claim 1 as amended, are patentable over the cited references.

In summary, claims 1 and 15 have been amended and claim 10 has been canceled. In view of the foregoing, it is respectfully requested that the claims be allowed and that this application be passed to issue.

Respectfully submitted,
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